REMARKS

Support for the "human" amendment is found, for example, on page 4, lines 1-2, and on page 5, lines 23-28 of the instant specification. Hence, no new matter is introduced by the amended claims and entry of the amendments is requested respectfully.

I. Claims 1-3, 20 and 21 were rejected under 35 U.S.C. 103(a) over Gaber in view of Ketchum and Fairman.

According to the Examiner, Gaber teaches assays for identifying inhibitors or activators of potassium channels expressed in mutant *S. cerevisiae* cells having inactivated endogenous potassium channels of TRK1, or TRK1 and TRK2; Ketchum et al. teach the existence of a third endogenous potassium channel in *S. cerevisiae*, TOK1; and Fairman et al. teach a triple mutant of *S. cerevisiae*.

The rejection is traversed for the following reasons.

As stated in Gaber in the first full paragraph of the Summary of the Invention, the Gaber reference relates to double mutant yeast complemented with a plant gene. The only heterologous complementing gene described and enabled is the Arabidopsis plant gene.

Ketchum et al. do not teach yeast mutants that are complemented by non-yeast genes.

Fairman et al. do not teach yeast mutants that are complemented by non-yeast genes.

Thus, none of the relied on references, or any combination of the three references teaches or suggests yeast mutants that are complemented by heterologous genes aside from the Arabidopsis potassium channel. None of the references, even in combination, teaches or suggests a yeast triple mutant that is complemented by a human channel. Accordingly, a prima facie case of obviousness has not been made.

Moreover, as known in the art, the more fastidious a cell, such as the triple mutants of Fairman et al., the more difficult it is to treat and to manipulate such a cell, such as, to expose that cell to a transformation procedure. If it were possible to get a heterologous gene into such a fragile cell, there is no reasonable expectation of expressing such a heterologous potassium channel, and then, there is no reasonable expectation to have that expressed human gene complement the triple mutant. The fragile state of the Fairman et al. cell would dissuade an artisan from having any interest in exposing that triple mutant to another genetic treatment

because of the poor likelihood of success. Finally, there is no basis to conclude that such a quadruple mutant could be used in a screening assay as claimed in the instant application with a reasonable expectation of success.

The instant invention relates to the use of a human potassium channel expressed in a yeast triple mutant to identify modulators of that human potassium channel. None of the references or any combination of the references teaches using a human potassium channel in a triple mutant yeast in a screening assay. Moreover, there is no basis to conclude there is a reasonable expectation of successfully obtaining complementation of a triple mutant with a human potassium channel based on the teachings of the relied on references and the state of the art. Finally, the references themselves teach away from using a triple mutant, for example, Fairman et al. teaching the very sensitive nature of the triple mutant.

Hence, a prima facie case of obviousness has not been made and withdrawal of the rejection is in order.

II. Claims 1-10, 20, 21 and 25 were rejected under 35 U.S.C. 103(a) over Gaber in view of Ketchum and Fairman and further in view of Tang and Rampe.

The rejection is traversed for the following reasons.

All of the arguments above as to Gaber, Ketchum and Fairman, and of record, are herein incorporated by reference in entirety.

Tang et al. teach, in the third full paragraph of the left column on page 1233, yeast double mutants, where the potassium channel defect is more severe than in single mutants, which were complemented by a guinea pig channel, see page 1234.

Thus, at best, Tang et al. teach a guinea pig channel in a yeast double mutant, and extend the teaching of Gaber by a species. There is no teaching or suggestion of using a human channel, and there is no teaching or suggestion of using a triple mutant, with a reasonable expectation of success.

Rampe et al. do not teach using yeast mutants as host cells, they used human channels in human cells. Thus, Rampe et al. do not teach or suggest expressing a human channel gene in a triple mutant yeast cell.

Therefore, Tang et al. and Rampe et al. do not cure any of the fatal deficiencies of the three primary references as discussed above, Gaber, Ketchum et al. and Fairman et al. Hence, a prima facie case of obviousness has not been made. Accordingly, the rejection can be removed.

CONCLUSION

Re-examination, reconsideration, withdrawal of the rejections and early notification of allowance are requested respectfully. If any questions remain, the Examiner is requested respectfully to contact the undersigned at the local exchange noted hereinbelow. If any fees are found to be applicable, please charge any additional fees or make any credits to Deposit Account No. 02-1818.

Respectfully submitted,
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